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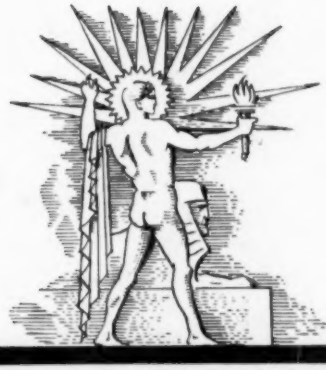
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



June 15, 1940

For Science

See Page 374

A SCIENCE SERVICE PUBLICATION

Do You Know?

Armies on foot and with horse-drawn units marched 20 miles a day: now a *motorized* army can move at the rate of more than 300 miles a day.

The American Red Cross will conduct 16 national *aquatic schools,* this summer, to teach life saving and other safety techniques in the water.

An Indian *chief's house,* made of big red cedar logs and squared timbers and decorated with totems, has been reconditioned by CCC boys at Wrangell, Alaska.

If dried *sweet potatoes* could be kept for year-round feeding, says the Department of Agriculture, the sweet potato could come to be one of the most important feed crops of the South.

A novel *woodpecker* problem was recently reported by a California citrus grower: He had to repair an airplane used in spraying groves because a woodpecker pecked a hole in a propeller blade, and unbalanced the blades.

A model *Mayan village* in Yucatan, where modern Mayas will be taught Mayan grammar and customs of their famous ancestors, is part of Mexico's plan to bring Indians up to date via education in their own languages.

A Cleveland *dentist* who says dentists are afraid of three-year-olds has ideas for promoting mutual confidence: carmine in rinse water helps prevent fear of sight of blood, and pleasant flavors in dental materials are good psychology, too.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

AERONAUTICS

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PSYCHOLOGY

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SEISMOLOGY

How can scientists repeat earthquakes? p. 376.

In less than a minute, a whole *pearl* necklace can be given an X-ray test to reveal whether the pearls are natural or cultured.

Since *cod-liver oil* from Norway is no longer available, Canada plans to become self-sufficient in this oil by extracting its own supply.

Farm animals are being taught to use *flytraps* for summertime comfort: the animal passes through a cage and canvas flaps brush off the flies.

New York City's 33-mile Belt Parkway from Brooklyn to Queens will have the longest and largest sodium safety *lighting* system ever installed.

Believed the most comprehensive scientific treatise on *ice,* a 940-page work by A. B. Dobrowlski was published in 1923 in Polish.

Seed corn dried and hermetically sealed and put in cold storage for as long as six years still has life and power to germinate.

Since 1875, more than 100 types of telephone *transmitters* have been designed and discarded, as improved types have been devised.

To gather 22,000 plant specimens in *Guatemala,* a Field Museum botanist climbed volcanoes, waded rivers, and struggled through bogs.

SCIENCE NEWS LETTER

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MEDICINE

Hopeful Outlook for Babies Born With Heart Defect

American Heart Association Also Hears of Method To Increase Circulation, Treatment for Chilblains

A HOPEFUL outlook for babies born with the heart defect, patent ductus arteriosus, was given by Dr. M. J. Shapiro, of Lymanhurst Clinic and Convalescent Hospital, Minneapolis, at the meeting of the American Heart Association in New York.

This heart defect consists of an opening from the aorta, main artery leading from the heart, into the artery supplying the lungs with blood. Normally present before birth, this opening sometimes fails to close.

Most of these children get along very well, showing no stunting of growth or signs of heart strain, Dr. Shapiro declared. For those few who do develop heart strain, surgeons have devised an operation which, though dangerous, has been successful in a number of cases. The results of this operation in five patients was reported by a surgeon at the American Medical Association meeting in New York, Dr. Shapiro said.

In only two out of 19 patients with this heart condition whom Dr. Shapiro followed for from one to 17 years did signs of increasing heart strain develop.

Science News Letter, June 15, 1940

Circulation Stimulated

DANGEROUS blood clots in veins or arteries after surgical operations, phlebitis, arthritis and painful joints, and chronic arterial occlusion can be relieved, Mayo Clinic doctors hope, by a new device which they announced at the meeting of the American Heart Association.

The device is called a heating sleeve or heating boot. It was designed by Dr. George E. Brown, Jr., and Dr. Edgar V. Allen to increase the flow of blood to hands, feet, fingers and toes. Tests on normal persons and on patients with high blood pressure show that it does.

Trials on patients in whom a clot or other condition has stopped the flow of blood through a vein or artery have not yet gone far enough to show conclusively whether the new device will help by increasing the flow of blood through other veins or arteries in the same leg or arm.

Other methods devised to increase blood flow, the Mayo doctors pointed out, are not entirely satisfactory, either because they give only temporary relief or because the machines used are cumbersome and expensive.

The heating sleeve or heating boot is made of fine copper wire woven by a special process onto a fireproof cloth. This is incorporated into a waterproof and washable cover. It is heated by electricity, a transformer reducing the voltage to 10. A fuse protects against short circuits and a thermostat included in the units prevents the temperature from increasing to more than 109.4 degrees Fahrenheit. The device can be made inexpensively and is so simple to operate that it can be used in the patient's home.

The device is used on the arm or leg opposite to the one affected with circulatory disorder, following the principle of reflex vasodilatation. This principle is based on the observation that heating one extremity dilates the blood vessels in the other. For example, immersing one hand in hot water increases the blood flow in the opposite extremity. In the Mayo Clinic tests, applying the new device to one arm increased the skin temperature of the toes and of the fingers on the opposite side.

Science News Letter, June 15, 1940

Treat Chilblains Early

PERNIO—chilblains to the layman—is a disease of the blood vessels and not, as has long been believed, a disease of the skin, Dr. Teresa McGovern and Dr. Irving S. Wright, of New York Post-Graduate School and Hospital, Columbia University, declared.

The condition today is found more often in women than in men, affecting the legs chiefly. This is due, the New York doctors say, to the fact that in these days of short skirts and sheer hose women do not have adequate protection from the cold in winter.

To prevent chilling of the body with such a large surface area as feet and legs from mid-calf down exposed, the blood vessels in the legs are forced to constrict. As a result, the tissues, especially those just under the skin, do not

HEATING SLEEVE

Dangerous blood clots in veins or arteries may be relieved by this new device for increasing the flow of blood.

get enough nourishment, and pernio or chilblains follow.

Permanent disfigurement and long periods of incapacitation can be largely prevented by early recognition and treatment of the condition. No specific treatment, in the sense of a cure, is available, but the New York doctors report "best results" from forcing into the tissues by means of electricity a chemical (acetyl-beta-methyl choline) which dilates blood vessels. Proper clothing to protect the legs from undue exposure is also advised.

Science News Letter, June 15, 1940

AERONAUTICS

Italy's Air Force Weaker Than Several Years Ago

Loss in Spanish Civil War is Reported as 1,000 Planes; Many of Those Now in Service Are Obsolescent Types

WHILE Italian entrance into the war on Germany's side will certainly be no help to the Allies, Mussolini will have to do battle with an army and air force both of which had to be reorganized from top to bottom last winter; a navy weaker in capital ships although stronger in lighter vessels than the French fleet; and the poorest reserve of resources and raw materials of any major power in Europe.

Despite the general impression to the contrary, the Royal Italian Air Force three months ago included only 3,100 obsolescent planes, an article in *Popular Aviation* will declare. The article is based on reports this spring by the Rome air attaches of two powers, necessarily not identified. First line aircraft total 2,100, the reports agree.

Most recent Italian military plane types, including the fast Breda 88 twin-engined bomber (340 miles an hour) and a modern single-seat fighter, the Fiat G-50, were either unsuccessful or too expensive and had to be abandoned, it is stated. Newest Italian fighter is a low-wing all-metal monoplane, the Macchi 200, which has not been long in production, however. Mainstays of the force are still the trimotored Savoia-Marchetti 79 bomber and the Fiat CR-42, a little biplane fighter. Both saw service in the Spanish civil war when Mussolini was busy "non-intervening." Biplane fighters have long since been withdrawn from active service by other powers. Speed of the S-M bomber is 295 miles an hour, fully up to standards of present service planes, but there is no immediate modern replacement for it because of the Breda's failure.

The state of Il Duce's air arm is surprising, the article comments, but can be explained by the fact that the Spanish civil war cost Italy 1,000 planes—500 shot down by the Loyalists and 500 left behind when the Italian troops and pilots returned home—and that Italy is a poor nation industrially. She was at the head of the air parade for years by being one of the first countries to appreciate the importance of air power. In the last few years, however, other nations have entered the race and have already outstripped her or will because of their greater resources. Even this air force, however, may be able to cause the Allies great difficulty because the French armee d l'air is small and is reported to have been badly hurt by German raids against airdromes in France during the last three weeks.

Italy has already apparently mobilized 2,000,000 of her total of 7,500,000 troops and reserves. Not more than 4,000,000 are likely to be called up any time in the near future, however. This represents a fighting force of 120 to 130 divisions. Estimates of the number of soldiers France has available to meet a thrust across the Alps by such an Italian force agree on 1,000,000 as the maximum. France's border with Italy, however, favors the Allies, as the Alpine passes spread out into France. The French command thus has the opportunity to attack the Italian detachments coming through the passes before they can assemble.

Italian army equipment is not on the same scale as that of the Nazi army. Last fall, Marshal Badoglio reported to Mussolini that the army was not in any shape to fight a major war for months to come, and the reorganization heralded by the sweeping cabinet changes of Oct. 30 resulted. How much progress has actually been made is another matter on which information is naturally scarce. Sledgehammer armored divisions such as the Germans unleashed on the western and northwestern front, however, are not to be expected. The Italian tank corps, for example, is known to be equipped largely with light highspeed Fiat tanks and not the heavy monsters forming the spearheads of the Nazi columns. The Whippet tanks were proved fairly well useless in Spain. The French 25 mm. anti-tank gun is useless against 30-ton Nazi tanks, but it should be effective against the lightly armored Italians.

At one time this winter, equipment shortages were so severe that a part of the troops then on active service did part of their service in sneakers instead of army boots, according to several American witnesses. The boots they should have had had been sold to France to raise badly-needed foreign exchange.

The Italian navy is relatively strong. Four modern capital ships are in commission and four under construction, not many compared with France's eight and three. Twenty-one Italian cruisers of all types are in service, and 14 are on the ways, however, as compared with 18 and three for France. As of Oct. 1, 1939, Italian destroyers outnumbered their French equivalents, 98 to 70, but France has 30 under construction against a dozen new Italian units. Over-age and under-age Italian submarines are 155; France has 76. Both have 26 undersea craft a-building.

In Bad Economic Straits

Italy has been in desperate economic straits since the start of the war. Tourist trade, a major source of income, has simply dried up. Basic raw materials are all normally imported and have been affected by the British blockade. Coal, of which Italy produces less than a tenth of her requirements, has been so hard to get that a number of factories were closed for weeks at a time. Ordinarily, Italy burns German coal brought from Hamburg by ship. The Germans and Italians both say rail shipments are meeting her needs, but not even the Italians believe that.

Here are some of the sinews of war which Italy does not produce: coal, iron, manganese, copper (Yugoslav deposits are near at hand but are small), petroleum, wool, chromium, nickel, tin. Of the important metal ores, only bauxite for aluminum is found in large quantities in

the peninsula. If Germany is resources-starved, Italy's condition defies description.

Some war supplies for Italy and the Reich both are believed to have leaked through the Allied contraband control, but Rome newsmen are unanimous in agreeing that the quantities were small.

Science News Letter, June 15, 1940

AERONAUTICS

Lightning Not Menace To Modern Planes

MODERN all-metal transport planes have successfully withstood at least 50 cases of lightning discharges since their introduction five years ago. In no case has there been serious damage to the plane and the risk to flight from this cause is no serious menace, says E. J. Minser of Transcontinental and Western Air in a report to the Civil Aeronautics Authority.

For the aviation industry the General Electric Company has been making a survey of the small holes produced by the lightning strokes and correlating them with laboratory studies on artificial lightning.

It is found that the cumulus type of cloud that brings summer showers is the most dangerous cloud formation, especially in the temperature zones around freezing: 25 to 35 degrees Fahrenheit.

Zones of positive and negative charges are built up in such clouds, says Mr. Minser, and it is believed that as the metal plane passes through the transition region between these inner cloud zones it acts as a conductor and "igniter" of the lightning discharge within the cloud.

Initial warning to the pilot when flying in a cloud is a strong increase in static and the appearance (at night) of a brush discharge of electricity known as St. Elmo's fire. The static crescendo builds up and ends in the crash (like a shotgun discharge) about the plane.

New pilot rules are helping prevent the lightning hazard. Pilots are cautioned now to avoid instrument flying through cumulo-type clouds especially on a level when the temperature is between 25 and 35 degrees Fahrenheit. Also to drop down and reduce speed when conditions indicate imminence of a lightning strike. And finally to turn on all lights in the cockpit if they must continue the flight in the lightning hazard region. This last rule minimizes the blinding blast of light when the lightning strikes and prevents temporary blindness to the pilot.

Science News Letter, June 15, 1940

TRAINING PLANES

Advancing toward the open end of the Stearman Aircraft Division of Boeing are these training planes, part of the largest peace-time order ever placed by the United States Government.

AERONAUTICS

British Fighter Plane Has Turrets That Fire Broadside

Unusual Gun Arrangement Gives "Mystery Ships" Superiority But They Are Too Few to Affect Issue

IF LONDON reports are accurate, a rising toll of Nazi warplanes is marking as a success a new British development in air fighting—the mounting of broadside-firing turrets on fighters.

The R.A.F.'s Boulton Paul Defiants, first sent into action a few weeks ago, have won a marked ship-for-ship superiority through their unusual gun arrangement, although the English "mystery ships" are too few in number to affect the issue decisively now, and it should be possible for the Nazis to contrive an adequate defense.

Conventional fighters are armed with fixed guns which fire forward. Bombers carry weapons with a limited field of fire mostly front and rear and designed to deal with the tail-on attack of ordinary fighters. Both types are thus vulnerable to the broadside fire of a power-driven turret in a plane cruising alongside. The Defiant's bullets, in other words, come from a quarter in which most bombers and fighters are largely blind. All three standard Luftwaffe bombardment types, the Heinkel 111K and Dornier 17 and 215, and Junkers 88, are at present without real protection against attack from the side, for example.

The Defiant's turret, which fires four machine guns, is a development of the R.A.F.'s bomber turret, whose success in defending British bombers convinced the Air Ministry that special fighters should be built around it. The Defiant and the Blackburn Roc, a naval combat ship, resulted. Continued success of these

planes will mean that the Reich, too, will have to counter with broadside weapons of its own.

Superiority of the Defiant can be attributed mostly to its armament and not to other features. A single-engined two-seater, its top speed of less than 330 miles an hour makes England's "secret weapon" slower than most fighters, little faster than most bombers and not as fast as some of the newest. Single-engined multi-seaters have been abandoned by the U. S. Army Air Corps for that reason, but it should not prove impossible to utilize the Defiant's principle of gun-power on twin-engined combat planes.

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PSYCHOLOGY

Ape Babies To Be Trained In New Experimental Nursery

Infants Separated From Mothers at Birth Will Have Benefit of Scientific Care and Will Wear Diapers

See Front Cover

SOMETHING new in experimental nurseries has just been completed at Orange Park, Florida.

Infants separated from their mothers at birth will be brought up entirely under a scientific, controlled regime directed by an experienced psychologist, Dr. Henry W. Nissen.

Behavior problems will be studied. Growth and development will be watched and measured. Comparison will be made between the infants in this spic-and-span scientific nursery and those brought up by the "instinctive" care lavished by a mother.

If you could walk into this nursery, you would be charmed by the infants, dressed simply in the conventional three-cornered garment of babyhood, but you would not try to enroll a baby from your own family. Reason: The nursery is exclusively for chimpanzees.

At Orange Park, the Yale Laboratories of Primate Biology are building up a colony of apes—close relatives to man—of known birth date and recorded life history. Now the young of animals born in the colony are providing for science the second and third generations of animals for whom family and life records are available. With individuals from this third generation enrolled in "nursery school," it will be possible to control factors of training and to a certain extent those of heredity.

Little Alf, now a six-month-old baby, and one of the first in the new nursery, represents the first step taken toward breeding the chimpanzee to specification as a laboratory animal, Dr. Robert M. Yerkes said in reporting the new nursery. (*Science*)

His father, Frank, is extraordinarily gentle, intelligent and co-operative. The mother, Alpha, daughter of famous old Pan and Dwina, is a docile creature used all her life to cooperating in psychological experiments.

Should little Alf "take after" father and mother, and should he respond to the careful training he will receive in the new nursery, he will be "peculiarly valuable" both as a subject for scientific study and as a future parent for new experimental animals with desirable characteristics.

Incidentally, the new nursery serves a real and necessary purpose in the colony. For apes, surprisingly, are not always good mothers. Neither Alf's mother, Alpha, nor his grandmother, Dwina, accepted and properly cared for their first babies. Instead they behaved as if surprised and bewildered. The babies might have died had it not been for the intervention of human care.

Science News Letter, June 15, 1940

INVENTION

Hall of Inventions Opens At N. Y. World's Fair

TO SHOW America's inventive progress and to honor the more than 2,000,000 inventors of the past 150 years, a new Hall of Inventions was dedicated on June 7 at the New York World's Fair.

At ceremonies participated in by U. S. Commissioner of Patents Conway P. Coe, and Harvey D. Gibson, chairman of the board of directors of the World's Fair of 1940, the Hall of Inventions and its many displays was formally opened. Watson Davis, director of Science Service, was master of ceremonies.

The display marks the 150th anniversary of the founding of the American patent system. Occupying a prominent location on Rainbow Avenue, many historic inventions are shown. The U. S. government is participating by loaning priceless patent models. One display is the original Selden automobile. In a garden adjoining the building, patented plants will be seen growing, many of them flowers of great beauty.

Science Service will have a continually changing display, showing the latest inventions.

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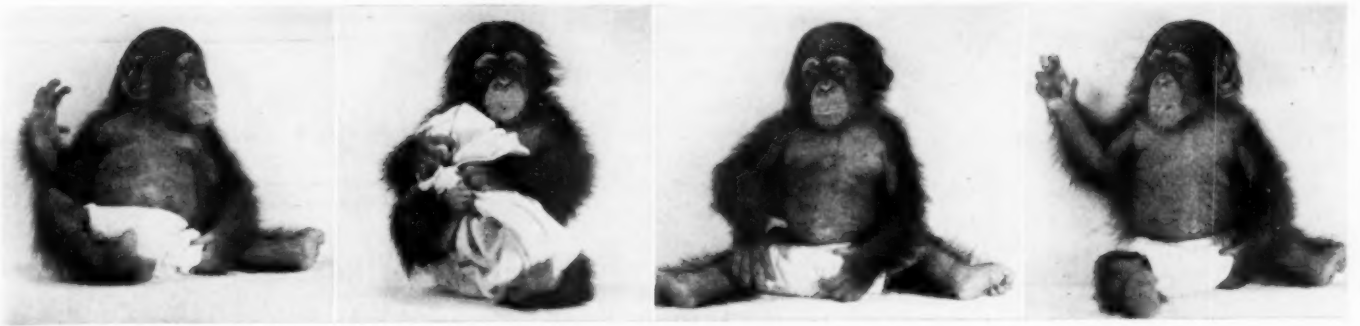
MAMMA ***PAPA***

Here are Alpha and Frank, gentle, cooperative parents from whom have been taken little Alf, one of the first pupils in the new experimental nursery at Orange Park. These excellent portraits were taken by Dr. Robert M. Yerkes.



CANDID SHOTS

Here is baby Alf, six months old, caught in playful and pensive mood by the camera of Dr. Henry W. Nissen. See also front cover.

NUTRITION

Is the World Facing Famine? Dark Question Haunts Experts

While United States Has Plenty, Hunger Stalks in Large Parts of Europe and China; Wheat Crops Bad

IS THE world being drawn toward famine?

This dark question haunts the food experts, who soberly admit they cannot see far ahead in this continually surprising war. But reports from the world's food front, that mean bread, or none, for large masses of the world's two billion people, are not bright.

There is hunger now in parts of Europe, hunger in northern China. The United States, more fortunate, sees no menacing shadow of food shortages on its own horizon.

At start of Europe's war, the world's granaries overflowed with largest wheat supplies known in history. The 1939 crop, plus record-breaking reserves, totaled the tremendous amount of 5,459,000,000 bushels, not counting the wheat in Soviet Russia and China, for which available figures are never complete.

Now, the wheat situation is less favorable. Wheat, which means bread to one-third of the world, has been attacked by severe winter in northern Europe, and by a late spring, shortage of field labor, devastation in embattled countries. The crop is forecast as less than needed for consumption.

Meanwhile, ironically, the reserve that was record-breaking in 1939 is apt to be about 250,000,000 bushels larger than in July, 1939, when it stood at 1,189,000,000 bushels. A large part of this reserve is in the hands of the Big Four wheat exporting countries—Australia, Canada, the United States, Argentina. Shipping and financing limit the amount that can be exported now. By another July, in 1941, the carry-over will be on the down grade, it is believed. Oddly enough, the Wheat Advisory Committee, back in 1938, forecast the carry-over of the world's wheat to be expected in the summer of 1940 at 1,369,000,000 bushels, which is close to the reality, though that forecast was based on an assumption of "normal conditions."

The saying of World War days, "wheat will win the war" may be heard again if strife spreads and lengthens. Germany's recent invasions have damaged crop prospects of lands that never produced enough grain for themselves at best. The United States in an ordinary year would expect to send 80,000,000 bushels of wheat to Belgium, the Netherlands, Denmark, and Norway. Feeding 20,000,000 Belgians, Dutch, and Danes next winter is a problem that Germany faces. And Germany's conquests have not yet brought her major grain resources to meet her own needs.

Reports of the world's wheat future include these:

Japan's wheat crop is now expected to be 24% less than the official estimate, due to adverse weather and not enough fertilizer supplies.

Finland lost quantities of grain in the ceded area, and found its imports of grain from Scandinavia cut off, when war broke out there. Finland expects a shortage of grain next winter.

France has the burden of 5,000,000 refugees, with the Red Cross as the only stop-gap aid in meeting the problem.

North China has been faced with hunger, and latest reports of the wheat crop there are conflicting, some encouraging, others not.

A bread-basket land like Hungary is rationing its flour to handle exports.

The United States' wheat crop is forecast a little smaller than last year, totaling 489,000,000 bushels of winter wheat, 215,000,000 bushels of spring wheat, and a carry-over in July, 1940, of about 288,000,000 bushels.

Spain, which spent a grim winter, with some towns going two days at a time without bread, has another scant cupboard to look forward to. The wheat yield is forecast at 20% below normal, due to scarcity of fertilizers, poor agricultural machinery and low acreage. Spain offers a preview of what other lands enduring war can expect.

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● RADIO

Prof. John M. Fogg, Jr., University of Pennsylvania botanist, will tell how you can become an amateur scientist and study and collect wild flowers in your vicinity as guest scientist on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, June 20, 4:00 p.m., EDST, 3:00 EST, 2:00 CST, 1:00 MST, 12:00 PST.

Listen in on your local station. Listen in each Thursday.

● Earth Trembles

Information collected by Science Service from seismological observatories resulted in the location by the U. S. Coast and Geodetic Survey of the following preliminary epicenter:

June 5, at 6:01 a.m., EST

Same location as quake of May 28. Latitude 68 degrees north. Longitude 138 degrees west. Strong shock.

For stations cooperating with Science Service, the Coast and Geodetic Survey, and the Jesuit Seismological Association in reporting earthquakes recorded on their seismographs, see *SNL*, Feb. 24,

MEDICINE

White Plague Will Be Wiped Out by Year 2000

THE GREAT white plague, tuberculosis, will be wiped out by the year 2000, Dr. Henry D. Chadwick, of Waltham, Mass., president of the National Tuberculosis Association, predicted at the Association's convention in Cleveland.

His prediction was based on the way the tuberculosis death rate has been dropping during the twentieth century. Assuming that the average decline of approximately one-third every 10 years can be maintained, Dr. Chadwick said:

"In that event, the tuberculosis death rate would be 32 in 1950, 21 in 1960, 14 in 1970, and 40 years from now in 1980 a rate of 9 or 10 may be anticipated. The bells that ring in the year 2000 may sound the death knell of the tubercle bacillus."

The "ultimate surrender of the tubercle bacillus" may come sooner than in two generations, Dr. Chadwick said, as a result of discoveries in chemical remedies and nutrition. "Research in both of these fields is yielding rich returns," he declared.

"More additional beds for tuberculosis patients placed where most needed" is the first aim of the fight against the disease at present, he said. For the 600,000 tuberculosis patients in the nation, 150,000 hospital beds are needed. Of this number, there are at present only 90,000 available.

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GENERAL SCIENCE

Science Can Aid In Arming America

THE national defense program and the world situation are causing stock-taking in human minds, factories, and scientific laboratories.

What can science do to help America rearm? This question was put to Dr. Charles F. Kettering, head of General Motors research, in a long-distance telephone interview.

"Boss Ket," as he is known in his laboratories, answered with a plea for more applied science in this emergency.

"Most scientists think that if a person learns the alphabet and knows all the letters, he can write an article fit to publish," said Dr. Kettering. "Graduates of our scientific and engineering schools learn the scientific alphabet. Too often they think they are fit to write all about any subject."

We must strive to learn more about matter and energy with the idea of using that knowledge which is so fundamental to our mechanical civilization, in Dr. Kettering's opinion. While theoretical physicists may argue about the precision of our understanding of the physical world about us, the field of force of an electric current is a perfectly definite and understandable thing that can be used. Less argument about theories and more engineering explorations and applications are called for by Dr. Kettering.

As research men move on to conquer those new frontiers of industry, considered by Boss Ket as full of promise, there must be done what he calls "janitor work," arranging the knowledge we have so that it can best be used.

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ENGINEERING

Average Car Speed Is 41 Miles Per Hour

THE average speed of passenger cars on the public highways is 41.6 miles an hour, it has been found in new studies by scientists of the U. S. Public Roads Administration.

Science News Letter, June 15, 1940

MEDICINE

Hibernation Treatment Is Declared Dangerous

THE FREEZING or hibernation treatment for cancer is "hazardous and is not justifiable in the treatment of hopeless metastatic carcinoma," Dr. Arkell M. Vaughn, of Loyola University School of Medicine, declares. (*Journal, American Medical Association,* June 8.)

Dr. Vaughn tried the method on six patients with cancers that had spread to other parts of the body and who were considered in a hopeless condition. Of this group, four patients died between 24 hours and three weeks following hibernation. The other two are still living seven and eight months after treatment.

Relief of pain in these two still living patients is "the only result of possible value" found from the treatment. The pain has returned in these patients, after three months of freedom from it, but has not yet become so severe as to require narcotic drugs for its relief. Dr. Vaughn believes that high voltage X-ray treatment given before the freezing treatment may be in some degree responsible for the relief of the pain.

Spread of the cancer to the bones was not retarded by the treatment in these cases, Dr. Vaughn reports.

Science News Letter, June 15, 1940

IN SCIENCE

SEISMOLOGY

Earthquakes Repeated With New Analyzer

MOST persons, when an earthquake is once over, have no desire to repeat it, but the seismologists, who study such tremors scientifically, often want a return performance, so as to study the movements that took place. This, in effect, can be done with the new earthquake analyzer developed by Prof. Arthur C. Ruge, of the Massachusetts Institute of Technology. It was described before the meeting of the eastern section of the Seismological Society of America at Xavier University, Cincinnati.

In many places, especially California, where earthquakes are likely to occur, "strong motion" earthquake recorders have been placed in strategic locations. The ordinary seismographs, which respond to tremors thousands of miles away, are so delicate that they cannot record the effects of a local quake. The strong motion instrument lies dormant until one happens in its vicinity, then it goes into action. Dr. Ruge now has available for study such records of about 40 earthquakes, including the disastrous one at Long Beach, California, in 1933, which killed 120 persons and caused damage to the extent of $50,000,000.

With the earthquake analyzer, the wavy lines in the record are scanned by an electric eye, and are transformed into a series of electric impulses. These are fed into a galvanometer, which has a swinging mirror, adjusted to vibrate with the same characteristics as any desired building or other structure. Thus, the swaying of such a building may be measured by recording, on a moving strip of photographic paper, a spot of light reflected by the mirror.

The characteristics of the swinging mirror are changed with another photo cell, or "electric eye," and can be adjusted by turning the control dials.

Professor Ruge expressed the opinion that the device will find other applications, such as analyzing rainfall or sunspot records, or for solving difficult vibrational problems of the mechanical engineer.

Science News Letter, June 15, 1940

NCE FIELDS

METEOROLOGY

Cosmic Rays Give Hint On Upper Air Weather

INVESTIGATIONS of the still mysterious cosmic rays provide a way to study the conditions of the upper atmosphere of the earth at extreme heights, it has been demonstrated at the Institute of Physical and Chemical Research and the Central Meteorological Observatory in Tokyo. It has been found that cosmic ray intensities fluctuate with different air mass conditions over Japan. Warm air masses high in the stratosphere tend to decrease the intensity of the cosmic rays.

Science News Letter, June 15, 1940

PHYSIOLOGY

Weed Out Soldier's Heart By "Mark Time" Test

BRITISH medical authorities in London believe the French are using the "mark time" test to weed out of their army potential victims of soldier's heart or effort syndrome.

This condition is not a specific disease but a combination of symptoms: shortness of breath, fatigue, giddiness, pain in the chest and palpitation. It is not confined to soldiers but ocurs in civilian life as well, and the patients are usually unable to do heavy physical work.

Dr. C. Lian, French physician, who used the "mark time" test to diagnose the condition in the last war, has recently reaffirmed his faith in this test, which suggests that it is probably being used in the present conflict.

The test is made by having the soldier mark time at the rate of two steps a second for one minute, being sure that he bends his hips fully at each step. The pulse rate is then counted for a quarter of a minute immediately after the test and again every minute until it has returned to its original rate, the soldier meanwhile remaining standing. The result is satisfactory and the man can be passed for active service if the pulse rate has returned to normal by the beginning of the second or third minute. If the pulse rate rises to 160 per minute or does not return to normal within 6 minutes, the result is unsatisfactory.

The toe-touching test is not severe enough for military requirements, Dr. Lian states, and other tests, such as mounting steps or running a prescribed distance, are impractical because they take too much space.

Science News Letter, June 15, 1940

PHYSIOLOGY

Men and Women Swap Clothes in Test of Comfort

WOMEN are two degrees cooler than men by skin temperature readings but the chief reason the sexes cannot agree over what is a comfortable indoor temperature is that women's clothes are cooler.

This was proved to a group of men when they donned women's filmy garments in scientific studies at the Harvard School of Public Health.

The studies were reported by Dr. C. P. Yaglou at the meeting of the American Industrial Hygiene Association in New York.

"Men dressed in women's summer clothing (weighing 1.8 pounds including shoes, as compared with men's summer wear of 5 pounds) demanded a temperature of 80 degrees Fahrenheit, which was about the same as that preferred by women (79.5 degrees) similarly dressed," Dr. Yaglou reported.

"Reversely, when women wore men's winter clothes (8.3 pounds instead of 2.6 pounds, the average of women's winter garb) the comfortable air temperature was just as low (70.5 degrees) as that preferred by men wearing the same clothes."

If men would wear a coatless and vestless dress with the lightest of underwear in hot summer weather, rooms would not have to be cooled below 85 degrees Fahrenheit for comfort, Dr. Yaglou said. The present standard is from 76 to 80 degrees. With men garbed for a temperature of 85 degrees Fahrenheit in summer, there would not be the trouble now experienced from exposure to sharp temperature contrasts between apparently chilly air-conditioned buildings and the heat outdoors.

In winter, Dr. Yaglou said, a room temperature of about 70 degrees Fahrenheit would be comfortable for both sexes in the coldest weather, if women wore more and warmer clothes and buildings were suitably insulated.

Science News Letter, June 15, 1940

BIOLOGY—CHEMISTRY

Faulty Sugar Chemistry May Cause Mental Disease

FAULTY sugar chemistry in the body may be one cause of mental and nervous diseases, Dr. G. Wilse Robinson, Jr., and Dr. Prior Shelton, of Kansas City, Mo., announce. (*Journal, American Medical Association,* June 8.)

Patients on the verge of a nervous or mental breakdown might, therefore, be helped by treatment of such a condition, it appears.

Signs of sugar disturbance that could be considered diabetes were discovered by these doctors in a high percentage of patients when first admitted to a hospital for mental disease. From one-third to nearly two-thirds of the patients appeared from the tests to have diabetes —a "hardly conceivable" percentage.

The patients were suffering from all types of mental and nervous diseases, including alcoholism. Tests on these patients several weeks after they entered the hospital showed normal sugar chemistry in from one-fourth to one-half of the group, although only one patient was given treatment for diabetes.

From their studies, the doctors conclude that faulty handling of sugars and starches is common in nervous and mental patients and that it may be a cause of the abnormal nervous and mental condition.

"The physician in general practise," they advise, "should keep this in mind when he is consulted by patients who present a symptom complex of 'nervousness,' fatigue, and ready exhaustibility, vague somatic (bodily) complaints and the picture that is usually diagnosed 'psychoneurosis.'"

If the doctor finds from tests that these patients are not handling sugar normally, a diet high in starch and sugar with insulin will be a valuable aid in treatment.

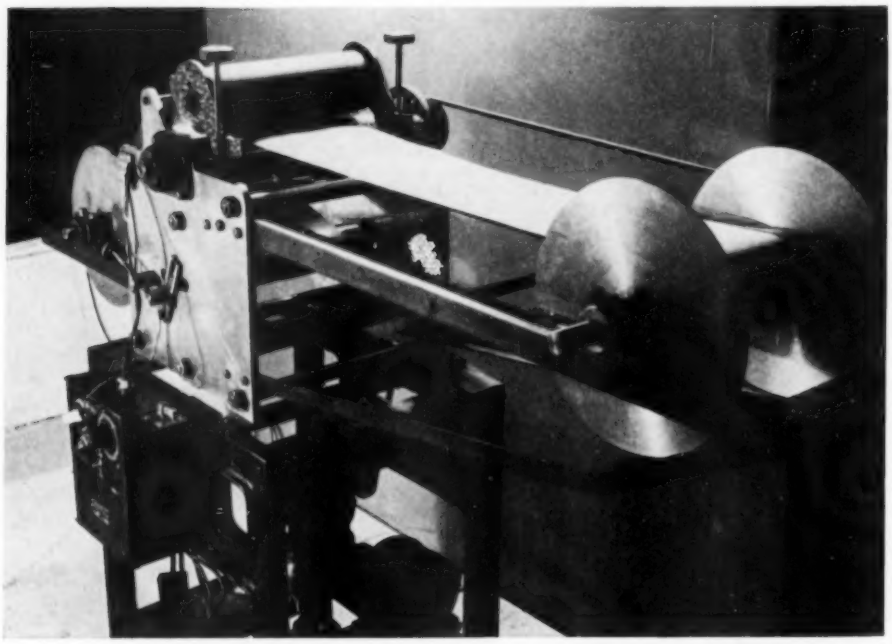
Science News Letter, June 15, 1940

ASTRONOMY

Meteors Are Neighbors, Members of Solar System

SHOOTING stars, or meteors, seem all to be permanent members of the solar system, according to Dr. Fletcher Watson, of the Harvard College Observatory. He finds that previous measures of their speeds, which would have brought some in from outer space, were too great.

Science News Letter, June 15, 1940



TREATS THE FILM

This is the original embossing machine with which Douglas Winnek made his first lenticulated film that makes his three-dimensional pictures possible.

PHOTOGRAPHY

Revolution in Photography May Come From New Process

Lenticulated Film of Young Inventor Makes Pictures With Depth; Can Be Used in Ordinary Amateur's Camera

PHOTOGRAPHIC prints that show amazing three-dimensional perspective; medical X-rays that tell surgeons just how deep to cut and where, subway and other advertising signs that peer at you with lifelike reality and magazine covers that do the same thing—these are only a few of the applications of the improved system of stereoscopic photography, known as trivision, invented by young 33-year-old Douglas F. Winnek of Mamaroneck, N. Y.

Passing around amazing colored transparencies at recent meetings of the Temporary National Economic Committee in Washington the young Westchester inventor astounded the Monopoly committee members with the apparent magic of his invention.

Out of those hearings came the awareness of the U. S. Navy to the invention and its applications to aerial photography and to medical X-rays for Navy doctors. As a result the Navy is writing a contract for young Winnek to construct a film magazine for one of their standard Fairchild aerial cameras so that the invention can be tried in accordance with the Navy's rigid standards of perfection.

Masterpiece of Winneck's trivision, as he chooses to call his new advance instead of the tongue-twisting stereoscopic photography, is a brilliantly colored figure of little Pinocchio. The sense of perspective and depth is so great in this picture that one instinctively puts up a hand to the wafer-thin sheet of film expecting to find it about two inches thick.

If you move the picture of Pinocchio or rotate it slowly, you will see trees in the background disappear behind his body. One has the illusion of looking slightly around the figure as with normal binocular vision in real life.

What young Winnek showed at the T. N. E. C. hearing were film transparencies, but the new process, he claims, can be adapted to the creation of photographic prints, either in black and white or in color, with an amazing illusion of depth.

Key to the Winnek success that now seems imminent has been the development of an embossing machine which takes the photographic film of any manufacturer and puts the lenticulated ridges on it that are the secret of the three-dimensional trivision effects. The film, in its long uncut rolls from the factory, is simply run through the machine and comes out with the vital ridges on it.

At the recent T. N. E. C. hearing Mr. Winnek showed pictures having 200 ridges per inch and he is now perfecting 300 ridges to the line. He says if this can be obtained the eye will be unable to discern the ridges and by making the film thin, it can become virtually invisible to the eye.

Principle Not Original

Mr. Winnek makes little claim for unique originality in his use of the lenticulated ridges on film to produce the illusion of depth in film transparencies.

What he does believe is important is the simple virtually automatic trick of producing the ridges on a practical commercial scale.

Ridges on a separate screen and in the film itself have a respectable history in the photographic art. The whole system of Kodacolor motion picture photography, used so widely by amateurs, is built up around ridged film although not in the same fashion as the new trivision. Also Dr. Herbert E. Ives, scientist of the Bell Telephone Laboratories, has patents on systems of stereoscopic pictures using ridged screens. One commercial application of the Ives patents has been the development of advertising display transparencies known as Depthograph which you may have seen in store windows.

The early work on the method was carried out by Dr. Ives and independently by Dr. C. W. Kanolt, formerly of the National Bureau of Standards. This work was reported to the meeting of the American Optical Society in October 1928. The system was a modification of an early invention of Dr. Ives' father, Frederic E. Ives, pioneer in the invention of the halftone process of reproducing photographs in newspapers and magazines.

Born in Eau Claire, Wis., Douglas Winnek started in as an usher in a motion picture house in Madison. Thoroughly inoculated with the germ that is the motion picture, Winnek worked himself into a publicity job for the Old Orpheum

circuit in Chicago. There he did his first serious thinking about three-dimensional pictures.

The old Orpheum circuit was gobbled up into Radio-Keith-Orpheum, power in the motion picture business, and with the financial backing of RKO officials Winnek set up shop in a theatre in Rochester, N. Y. For months he worked and shot up 12,000 feet of film before convincing himself and his backers that the faint appearance of depth in his experiments was merely a fuzziness introduced by vibrations.

Photographic Engineer

From RKO Winnek went to New York and opened up shop as "photographic engineer," a term of his own coining which kept enough money rolling in to live on. Late in 1935 he seriously started to find a way of embossing lenticulated ridges on photographic film so that one could get stereoscopic pictures. Winnek himself prefers the simpler term trivision as descriptive of these depth pictures.

Struggling along from one pot boiling job to another, Winnek used the cellar of his Mamaroneck, N. Y., home as the laboratory for his research on trivision. With a few intimate engineering friends he fashioned a compact and close-knit little research organization whose combined talents did what scientists have said couldn't be done: perfected a simple, easy and cheap way to make three-dimensional photoprints.

While trivision photographic prints represent the large commercial market for his depth pictures, Winnek is momentarily keenly interested in his transparencies in connection with X-ray film. It is possible, he says, to mark this X-ray film with a faint cross hatch of blue lines which, on the margins of the film, can be calibrated in terms of the actual depth perspective of the X-ray picture. This means that a surgeon can look at such a picture directly and can determine where and how deep his surgical objective may be.

LIKE TINY LENSES

Each of these little ridges (shown here greatly enlarged) picks up a separate image and this permits the eye to see the resulting picture as though it were an actual three-dimension scene.

Keenly interested is the Navy in this same technique, also, for certain military applications which need not be entered into here.

Asked how his little ridges on the film produce the amazing three-dimensional effect, Mr. Winnek gave this explanation:

"Trivision, three-dimensional pictures, are achieved by the use of an invisible transparent screen which is an integral part of the picture. This screen consists of a series of microscopically small lens bars, or ridges.

"These ridges on the film negative break up the single image of an ordinary photographic impression into a whole series of multiple images on the film emulsion.

Developed in Usual Way

"The film is developed in the ordinary way as though the ridges were not present at all. When developed and fixed, the transparency is viewed through the ridged, or lenticulated side. Your right eye sees one particular image out of the infinite number of panoramic glimpses present in the fixed emulsion.

"Your left, however, sees a slightly different set of panoramic glimpses. The effect, for both eyes, is that of seeing slightly around the edges of the object in the picture. This fulfills the basic requirement of binocular, or normal, vision."

Try this simple experiment to discover how greatly different are the two pictures which your eyes observe in normal vision. Hold up a thin object like a playing card or a package of cigarettes edgewise, and about one foot from your nose. Look at it with the left eye alone and then with the right eye alone. It is the combination of these two very different views in your brain which enables you to know that the playing card or cigarette pack has a depth. Your two eyes, as the scientists say, see in perspective.

There are undoubtedly many unforeseen "bugs" in the eventual development of trivision into its many ramifications but the pathway ahead, while perhaps difficult, seems straight forward. The interest of the Navy ought to do much to get inventor Winnek over the "hump" up which he is now plodding.

Here, in summary, are the possible applications of trivision to photography. All applications, remember, possess depth.

1. Film transparencies, as X-rays for medicine and industry.
2. Photographic transparencies for portraits and display advertising.
3. Paper print trivision for magazine covers and insert advertising within a magazine.
4. Display advertising in subways and windows.
5. Reproduction by printing press so that some day pictures in your newspaper may stand out with amazing depth.
6. Aerial photography with much greater depth perspective than pictures now taken.
7. Still projection of pictures so that they have depth.

Laughingly Winnek admits that three-dimensional motion pictures—the thing which started him off on his investigation—is still far in the future.

What will interest most people in trivision is the possibility—that should become a reality by next fall—of buying trivision film, putting it in their own cameras and being able to get three-dimensional prints.

Mr. Winnek says that owners of wide aperture lens cameras will obtain the best pictures but that almost any old camera will give an astounding degree of perspective. He estimates that at an increased cost of only 5 per cent it will be possible to process ordinary film into trivision film. This means on a 25-cent film roll that the cost will only be an extra cent or two.

Factory Processing

After you expose the film you will, at first, have to send it back to the trivision factory for the processing and production of prints. Later Winnek hopes to lease special printing machines to the hundreds of professional photographic laboratories which have drugstore pickup service. It will then only be necessary to take your film to the nearest drugstore. Eventually the serious amateur, who wants to make his own prints, will be able to buy or lease printing equipment.

A development of Winnek and his group is a low cost wide aperture camera especially adapted for trivision pictures. Wide aperture lenses of glass cost a small fortune, but Winnek believes that an inexpensive lens of this type can be made out of the new transparent plastics very cheaply.

Big trouble of Winnek's group now is

how to go through the final stage of development without selling stock, or selling rights to the whole process for a sum not commensurate with its importance and real worth. Potentially they are like a man sitting on a treasure chest but without a hatchet to break the lock. It looks, however, as if the box might burst of its own potentialities.

Science News Letter, June 15, 1940

PHYSIOLOGY

Negro's Ability to Stand High Temperatures Important

Harvard Fatigue Laboratory Studies Reveal That Negro Can Better Stand Hot, Humid Weather

NATIONAL defense plans might well call for Negro tank troops and Negro submarine crews in view of studies reported by Prof. D. B. Dill, Sid Robinson, F. G. Hall and J. W. Wilson of Harvard's Fatigue Laboratory, at the joint meeting of the American Association of Industrial Physicians and Surgeons and the American Industrial Hygiene Association.

The popular idea that the Negro can stand working in hot, humid weather better than the white man has apparently been proved by Prof. Dill's studies. The immediate practical application of his findings, Prof. Dill suggests, is in connection with national defense plans.

"The prospects are that many hundreds of thousands of American citizens will take their places in a defense army within the next few months. These men will have to do hard physical work; however highly warfare may have become mechanized, it continues to require the expenditure of physical energy at high levels for long periods and frequently at high temperatures. A large fraction of our armed forces is stationed in the tropics or sub-tropics, another large fraction experiences hot humid heat in the summer, and another and increasingly large fraction must become adapted to the uncomfortable and at times very hot interiors of tanks or submarines.

"War and sport are to some extent dependent phenomena, unpleasant as the implications may be . . . The most heroic war of modern times was waged by a nation of athletes—the Finns. The records of the Germans, French, English, Japanese, and Chinese in the last Olympic Games show a high correlation with their performances in the present wars. The fact that the United States won the track and field championship in the last Olympic Games should therefore be a source of some comfort to us in the present world situation."

Without the points scored by the Negroes in the last Olympic Games the United States could not have won, Prof. Dill stated.

Proof and explanation of the Negro's superior ability to do physical work, whether in industry, sports or war, at high temperatures was obtained from studies of Negro and white sharecroppers in Mississippi.

Crucial experiment was a two-hour walk on a treadmill in which each man covered seven miles and climbed about 3,000 feet at a temperature of 87 degrees Fahrenheit and a humidity of about 80%. During this test, the Negroes lost less salt and water from their bodies in sweat than the whites, did not get quite as hot as the whites as shown by body temperature readings, and in consequence did not come as near exhaustion as measured by the heart rate.

Under conditions such as this experiment, when the heart rate reaches 180 beats per minute, Prof. Dill explained, not come as near exhaustion.

At the end of the two hours, the mean value for heart rate for 20 Negro sharecroppers was 152, while for the seven white sharecroppers it was 173.

Science News Letter, June 15, 1940

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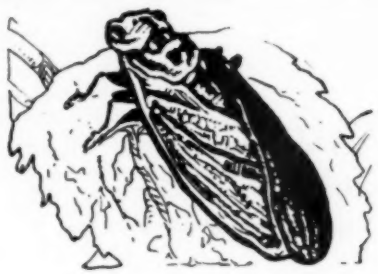
ENTOMOLOGY

NATURE RAMBLINGS by Frank Thone



Strident Songsters

BILLIONS of 17-year cicadas, longest-lived of all insects, are emerging from the earth over the greater part of the country between the Mississippi and the Atlantic coast, to fill the warm air with their shrillings throughout the month of June. They have lived underground for 17 years, sucking juices from tree roots. Those emerging now will mate, produce their eggs and die, and the tiny grubs that hatch from the eggs later in the summer will dig into the earth to repeat the same strange, hidden life cycle.

Heaviest outbreaks this season are occurring in the Tennessee and upper Ohio valleys, with outlying groups ranging from northern Illinois to Cape Cod, and south along the Appalachians into the northern counties of Georgia. This year's crop of 13-year cicadas, Southern cousins of the 17-year species, will be exceedingly scanty, past records indicate.

There are 17 broods of the 17-year cicada, and 13 broods of the 13-year kinbug, so that every year there are some

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of them, in one part or another of the country east of the Great Plains area. Some of these broods are large and widely distributed, as is the case this year: others are few and scattered, as will be the case in 1941, 1942 and 1943.

The periodical cicada is an insect with a body about the size of the end joint of your little finger, and large, thin, transparent, prominently-veined wings. Near the tip of each wing is a brilliantly orange-colored marking shaped like the letter W, which local prophets always interpret as a sure sign of war. This year's brood come as rather tardy prophets.

Cicadas can neither sting nor bite, so that it is perfectly safe to catch and handle them. The male insects (which are the only ones that sing) will even oblige with a solo as you hold them: you can see the little tympani in the sides of their bodies vibrating rapidly.

Science News Letter, June 15, 1940

MEDICINE

Dilatation of Carotid Artery Is Blamed for Migraine

Headache Caused by Stretching of Branches of Artery At Side of Head; Eye Symptoms from Constriction

STRETCHING and dilatation of branches of the external carotid artery are to blame for migraine headaches. Experiments showing this were reported by Dr. H. G. Wolff, Dr. A. M. Cahan and Dr. G. A. Schumacher, of New York, at the meeting of the American Neurological Association in Rye, N. Y.

The experiments were made on five patients in the midst of severe bouts of migraine. The cerebrospinal fluid in these patients was increased to a point great enough to abolish headaches caused by the chemical histamine. This pressure, however, did not diminish the intensity of the migraine headaches. From this the physicians concluded that the headache does not arise primarily from stretching and dilatation of brain arteries, as previously believed, but from the stretching and dilatation of the branches of the carotid, the big artery running up the side of the head.

The pre-headache visual disturbances, on the other hand, result, the New York physicians found from other experiments, from constriction of blood vessels which is succeeded by the dilatation and headache.

Science News Letter, June 15, 1940

Diet May Cause Sclerosis

HOPE for a successful attack on hitherto incurable multiple sclerosis appears in the discovery that the disease is linked with poor diet and that patients improve on a good diet.

This discovery was announced by Dr. Richard M. Brickner and Dr. Norman Q. Brill, of New York. Miss Frances H. Naylor and Miss Kathryn Montgomery, dietitians, assisted in the studies.

Multiple sclerosis is a disease of hardening of sporadic patches of the brain or spinal cord, or both. The patients usually become bedridden through paralysis of the legs, and there are other distressing symptoms, including mental changes.

The life-long dietary habits of 35 patients with this incurable disease showed an outstandingly low consumption of "vitamin containing carbohydrates, visible fat and, especially, dairy fat," the New York scientists found. Only four of the 35 patients had been eating thoroughly adequate diets for a long time.

All the patients except six in an advanced stage of the disease did well when their diets were corrected. Underweight persons did much less well than patients who had normal or above normal weights.

Many attacks of the disease were associated with or preceded by acute weight loss, prolonged periods of overwork, emotional strain, or germ diseases. These conditions, it was pointed out, increase the need for vitamins and calories and may have induced a nutritional deficiency responsible for the multiple sclerosis attacks.

Science News Letter, June 15, 1940

Nickel-silver is an alloy of nickel, copper, and zinc.

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CHEMISTRY

All-American Tires Shown; Made From Petroleum

Ameripol Costs More To Produce Than Natural Rubber But Would Be Valuable If War Cut Off Importations

AUTOMOBILE tires made entirely of American materials, which may make us independent of foreign rubber sources, were shown recently in New York to a group of scientists and industrialists. The tires are made of "Ameripol" a product of the B. F. Goodrich Tire and Rubber Co. The name signifies a "polymer," or recombination of molecules, of American supplies.

According to John L. Collyer, president of the Goodrich Company, Ameripol is the result of 14 years of independent research, carried out under the direction of Dr. Waldo L. Semon. Previously he discovered koroseal, another rubber-like synthetic, which has found many industrial uses.

It is made from the same raw materials as some other synthetics, namely, petroleum. By a cracking process, it is broken down to a mixture of simple molecules and from this mixture a gas is separated. Under pressure, this liquefies to form butadiene. When this is mixed with other ingredients, prepared from natural gas and air, and soap, produced from American agricultural sources, a milky emulsion is formed. This is heated and agitated, to form an emulsion of synthetic rubber, similar to the latex from the rubber tree. Then the process is similar to the natural rubber latex, and the product can be treated and vulcanized in the same way.

Mr. Collyer stated that Ameripol costs more to produce than natural rubber, though this can probably be reduced with increased production. In case war conditions cut off supplies of natural rubber, however, the synthetic material would have a definite advantage. For more than a year and a half, a pilot plant producing Ameripol has been in operation, while one with a daily capacity of several tons will be ready in the fall.

Many synthetic rubbery materials are in use today, some of which are similar to rubber chemically, while others are quite different. In fact, some of them have physical characteristics superior to natural rubber, in such respects as resistance to sunlight, oils and abrasion. In 1939, 1700 tons of these synthetic materials were employed in the United States, compared with 592,000 tons of natural rubber.

During the previous war, Germany produced the first synthetic rubber, which was called "methyl rubber." About fifteen years ago, the rise in price of natural rubber stimulated further research, in the United States and abroad. In Germany and Russia, synthetic rubbers are also made from butadiene, the same compound which is formed in the Goodrich process. Previously, in this country, Dupont has made a synthetic rubber, called Neoprene, from chloroprene, which is a derivative of butadiene. Another one, called Thiokol, which is less closely related chemically to the natural rubber, is made from products from a sulphur mine, a salt mine, and gas wells.

Science News Letter, June 15, 1940

PUBLIC HEALTH

Committee of Physicians Approves Hospital Plan

PLANS for a national health program, supported and coordinated by the federal government, should not be abandoned now that a more modest plan for federal hospital construction has been proposed, warns the Committee of Physicians in a statement issued by its secretary, Dr. John J. Peters, Yale University School of Medicine.

The plan to have the federal government spend $10,000,000 to build hospitals in communities now lacking them was proposed by President Roosevelt and has been embodied in a bill introduced in the Senate by Sen. Robert F. Wagner, of New York.

Providing this plan does not mean permanent abandonment of the national health program, the Committee of Physicians approves the hospital construction plan.

The hospitals built under this plan, the Committee specifies, should vary in size from 100 to 300 beds. Smaller hospitals than this probably could not offer comprehensive service.

The hospital should be directed by a lay hospital board representative of those persons in the community who will utilize it, the Committee of Physicians states. Members of the board should be drawn from welfare organizations, social service and philanthropic agencies, public officials responsible for the care of the indigent and wards of the state or community, business men and industrialists of the locality, and organizations of farmers or laborers, but no physicians who use the hospital should be on this board. There should, however, be a medical board, consisting of the chiefs of staff of the various services, to maintain and improve standards of medical care, control the use of the hospital by physicians and surgeons of the community and supervise their work.

Physicians should be paid, preferably on a salary basis, for their services in these hospitals to the indigent, wards of the government, and those patients for whose medical care the community assumes total or partial responsibility.

Out patient departments and other measures for integrating these hospitals with the public health services and general health programs of the community are recommended.

Effective ambulance service, appropriate to the character of the community, should be provided.

Science News Letter, June 15, 1940

Rubber that conducts *electricity* has been produced in England.

Magicians of ancient Egypt and Greece astonished their public by producing optical illusions by aid of metal mirrors.

An old but effective method for removing *grass stains* from washable clothing, says a home economist, is to rub the stain with molasses, then wash the spot.

•First Glances at New Books

Additional Reviews On Page 384

GENETICS

MAMMALIAN GENETICS — William E. Castle — *Harvard Univ. Press,* 164 p., illus., $2. Although mammals, even mice and guinea pigs, are much more difficult as materials for breeding experiments, they nevertheless furnish a more satisfactory basis for genetic study than the familiar drosophila, partly because the student is more familiar with them and more interested in them, partly because of the obviously greater practical importance of mammals in everyday life. Sooner or later it becomes necessary to find out if what we have learned of drosophilan genes holds good for mice and men. This new book by Prof. Castle is a worthy presentation of the facts as now known.

Science News Letter, June 15, 1940

CHEMISTRY

REFERENCE BOOK OF INORGANIC CHEMISTRY (Rev. ed.)—Wendell M. Latimer and Joel H. Hildebrand — *Macmillan,* 563 p., $4. This popular and widely used reference book in chemistry was first published in 1928. It has now been revised and brought up to date.

Science News Letter, June 15, 1940

BOTANY

FLORA OF THE AGUAN VALLEY AND THE COASTAL REGIONS NEAR LA CEIBA, HONDURAS—T. G. Yuncker—*Field Museum of Natural History,* 101 p., 75c.

Science News Letter, June 15, 1940

ENGINEERING

HIGHLINERS, A Railroad Album—Lucius Beebe—*Appleton-Century,* 103 p., $5. For the many thousands of Americans for whom railroads have a fascination, this collection of photographs will have appeal. Many people who know of Lucius Beebe only as the author of the sophisticated New York column will see in this book a new side to his nature.

Science News Letter, June 15, 1940

BIBLIOGRAPHY

INDEX TO THE LITERATURE OF FOOD INVESTIGATION, Vol. II, No. 1, June, 1939; No. 2, Sept., 1939; No. 3, Dec., 1939—Agnes Elisabeth Glennie, comp.—*British Library of Information,* 304 p., $1.35 per number.

Science News Letter, June 15, 1940

AGRICULTURE

OUTLINE OF DISEASE OF CEREAL AND FORAGE CROP PLANTS OF THE NORTHERN PART OF THE UNITED STATES—James G. Dickson—*Burgess Pub. Co.,* (mimeographed), 259 p., $3. Plant diseases and their causal organisms, listed according to host plants. Of especial usefulness to phytopathologists will be the full lists of literature references appended to each section.

Science News Letter, June 15, 1940

BIOLOGY

DETERIORATION OF PAPER, The Cause and Effect of Foxing—T. D. Beckwith, W. H. Swanson and T. M. Iiams—*Univ. of Calif. Press,* 38 p., 75c.

Science News Letter, June 15, 1940

MEDICINE—CHEMISTRY

CHEMISTRY AND MEDICINE, Papers Presented at the Fiftieth Anniversary of the Founding of the Medical School of the University of Minnesota — Maurice B. Visscher, ed.—*Univ. of Minn. Press,* 296 p., illus., $4.50. The busy practicing physician will find in this volume a clear and compact summary of the recent advances in chemical and other laboratories which are giving better tools for healing sick people. The book is too technical for lay reading, but will be of interest to medical scientists in general as well as to physicians.

Science News Letter, June 15, 1940

CHEMISTRY

THE ORDINALL OF ALCHIMY, Being a Facsimile Reproduction from Theatrum Chemicum Britannicum, with annotations by Elias Ashmole—Thomas Norton—*Williams & Wilkins,* 125 p., $2.50. First published in 1931, this beautiful facsimile of a famous book in chemical history has recently become available again, and is restored to the Williams and Wilkins list.

Science News Letter, June 15, 1940

EDUCATION

THE WORKER'S ROAD TO LEARNING—T. R. Adam—*Amer. Assoc. for Adult Education,* 162 p., $1.25. A study of how workers continue or obtain their education while they are working. One of a series on the social significance of adult education.

Science News Letter, June 15, 1940

BIBLIOGRAPHY

EDUCATIONAL RECORDINGS FOR CLASSROOM USE (Rev. April 1940)—*Assoc. of School Film Libraries,* 22 p., 50c. Records which may be used by schools, clubs or in the home. A variety of subjects are covered, such as history, literature, foreign languages and traffic safety. Prices and addresses of distributors are given.

Science News Letter, June 15, 1940

SPORTS

MODERN CAMPING GUIDE—George W. Martin—*Appleton-Century,* 349 p., $2.50. What to take, how to get about, what to do when you get where you're going—all told simply but adequately and well illustrated with diagrammatic sketches. The beginner will find it invaluable, and the veteran will doubtless pick up tips on a good many points he somehow missed learning before.

Science News Letter, June 15, 1940

ZOOLOGY

WONDER CREATURES OF THE SEA—A. Hyatt Verrill—*Appleton-Century,* 272 p., illus., $3. Now that summer sojourns at the seaside are beginning, many readers will find this book helpful in understanding the strange things they find among the rocks and in the tide pools.

Science News Letter, June 15, 1940

NATURAL HISTORY

ANNUAL REPORT OF THE DIRECTOR TO THE BOARD OF TRUSTEES FOR THE YEAR 1939—*Field Museum of Natural History,* 173 p., $1. (Report Series, Vol. 12, No. 1.)

Science News Letter, June 15, 1940

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Additional Reviews On Page 383

HORTICULTURE

GARDENING WITHOUT SOIL—A. H. Phillips—*Chemical Pub. Co.,* 137 p., illus., $2. The first book on soilless culture methods to come out of England. It is written, of course, with a special eye for British conditions (especially British climatic conditions); for which very reason, perhaps, it is decidedly worth study by anyone who is seriously interested in this new and potentially important development in horticulture.

Science News Letter, June 15, 1940

PSYCHOLOGY

RELAXATION IN EVERYDAY LIFE—E. J. Boome and M. A. Richardson—*Sherwood Press,* 131 p., $2. A British physician and speech therapist give advice on how to "let go" that is timely in these days of stress.

Science News Letter, June 15, 1940

NATURAL HISTORY

DOWN TO EARTH, A Naturalist Looks About—Alan Devoe; illus. by Gertrude M. Bradley and D. F. Levett Bradley—*Coward-McCann,* 228 p., illus., $2.50. From paramecia and oysters to hawks and tigers, the whole animate world has supplied this thoughtful naturalist with material for the essays that have been assembled to make up this book. Good reading alike for those interested in living things and for those interested in a living literary style.

Science News Letter, June 15, 1940

ZOOLOGY

MY FRIENDS THE BABOONS—Eugène N. Marais—*McBride,* 124 p., $1.75. Careful observations by a South African naturalist, who lived for years in the close neighborhood of baboon communities. He found an astonishing degree of "humanness" among these little known, little understood primates.

Science News Letter, June 15, 1940

ECONOMICS

THE ENGLISH HIRE-PURCHASE ACT, 1938, A Measure to Regulate Instalment Selling—John E. Hamm—*Russell Sage Foundation,* 59 p., 50c.

Science News Letter, June 15, 1940

TRAVEL

TIXIER'S TRAVELS ON THE OSAGE PRAIRIES—John Francis McDermott, ed.; translated from the French by Albert J. Salvan—*Univ. of Oklahoma Press,* 309 p., map, $3. First published English translation of a rare item of western Americana, this volume tells the experiences of a traveler who spent several months in Osage villages and on their summer hunt just a century ago.

Science News Letter, June 15, 1940

GEOLOGY

DICTIONARY OF GEOLOGICAL TERMS (Exclusive of Stratigraphic Formations and Paleontologic Genera and species) —C. M. Rice—*Author, 14 Vandeventer Ave., Princeton, N. J.,* 461 p., $6. Here is a geology book which the non-geologist will welcome even more than the geologist, for it will help him through the mazes of a professional jargon which in spots stumps even the elect. It tells the precise meanings of *aa* and *zyklopisch,* and of many an equally puzzling word in between. It is a "must" for all geological and general library reference shelves.

Science News Letter, June 15, 1940

ECONOMICS

CONSUMER CREDIT AND ECONOMIC STABILITY — Rolf Nugent — *Russell Sage Foundation,* 420 p., $3. This book is based on a number of studies made by the Foundation, of consumer credit. Its thesis is "that consumer credit fluctuations have contributed substantially to the amplitude of cyclical movements in recent years and that they represent an increasingly powerful force toward economic instability."

Science News Letter, June 15, 1940

RADIO

RADIO WORKERS — Picture Facts Associates; Alice V. Keliher, ed.—*Harper,* 56 p., $1. With its numerous illustrations, this addition to the publisher's series of "Picture Fact Books" should be of particular interest to a young person who is thinking of radio as a career. Rudolf Modley, designer of SCIENCE NEWS LETTER's "Telefact," has contributed pictorial charts.

Science News Letter, June 15, 1940

CHEMISTRY

GENERAL CHEMISTRY, A First Course —Leona E. Young and C. W. Porter—*Prentice-Hall,* 644 p., illus., $3.50. A new text, intended for use in a college course, which does not require any high-school chemistry as a prerequisite. Because of this, and the completeness of the book, it should be of value to anyone wishing a simple yet up-to-date reference work on chemical science.

Science News Letter, June 15, 1940

BOTANY

ROCKY MOUNTAIN TREES—Richard J. Preston, Jr.—*Iowa State College Press,* 366 p., illus., $2. With a great deal of information packed into a minimum of space, and unusually good illustrations, this book will prove useful not only to students resident in the Rocky Mountain region but also to those visiting there for summer courses, and for the traveling tree-loving public generally. Small distribution maps included with species illustrations are materially helpful.

Science News Letter, June 15, 1940

CHEMISTRY

FRUIT PECTINS, Their Chemical Behaviour and Jellying Properties—C. L. Hinton — *Chemical Pub. Co.,* 96 p., $1.75. The housewife making jelly would probably find little of interest in this report, but it will be useful to anyone concerned with the technical features of what makes jellies jell.

Science News Letter, June 15, 1940

MATHEMATICS

INTRODUCTION TO THE CALCULUS—Arnold Dresden—*Holt,* 428 p., $3.40. A new text by the professor of mathematics at Swarthmore College.

Science News Letter, June 15, 1940

MATHEMATICS

BRIEF COURSE IN ANALYTICS—M. A. Hill, Jr. and J. B. Linker—*Holt,* 204 p., $1.36. The authors, members of the faculty of the University of North Carolina, have here produced an introduction to analytic geometry, intended for a three hour per week college course.

Science News Letter, June 15, 1940

TECHNOLOGY

LEATHER FINISHES, Their Formulation, Manufacture and Application — J. S. Mudd—*Chemical Pub. Co.,* 113 p., $4.25. Contains full information concerning all types of finishes, the raw materials used in their manufacture and the methods by which they are produced.

Science News Letter, June 15, 1940

RADIO

RADIO AS A CAREER—J. L. Hornung—*Funk and Wagnalls,* 212 p., $1.50. A book which includes practically all that one might want to know about getting into radio work—what the openings are, the training that is required, how much the jobs pay, etc. This is one of the Kitson Careers Series.

Science News Letter, June 15, 1940